

Unusual ISS Rate Signiture.

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On November 23, 2011 International Space Station Guidance, Navigation, and Control reported unusual pitch rate disturbance. These disturbances were an order of magnitude greater than nominal rates. The Loads and Dynamics team was asked to review and analyze current accelerometer data to investigate this disturbance.

This paper will cover the investigation process under taken by the Loads and Dynamics group. It will detail the accelerometers used and analysis performed. The analysis included performing Frequency Fourier Transform of the data to identify the mode of interest. This frequency data is then reviewed with modal analysis of the ISS system model. Once this analysis is complete and the disturbance quantified, a forcing function was produced to replicate the disturbance. This allows the Loads and Dynamics team to report the load limit values for the 100's of interfaces on the ISS.